NOTE XVI.

REMARKS ON HEMICHROMIS FASCIATUS PETERS

BY

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Among a collection of fishes, sent by Mr. Jackson Demery from Liberia, were 11 examples which, at first sight, seemed to me to agree with *Hemichromis fasciatus* Peters. A careful examination led me to give some remarks on the characters of this species, which will make the determination more easy, and contribute to resolve the question: do the examples of *Hemichromis fasciatus*, till now described by the authors, belong to one and the same well-defined species.

The material of *Hemichromis fasciatus* now in the Leyden Museum, including the 11 above mentioned specimens, consists of a number of 28 examples, namely:

a. N°. 2278. 3 spec., length 80, 115 and 125 mM. Dabocrom. Pel coll., 1850.

b. N°. 2019. 1 spec., length 140 mM. Ashantee. Pel coll.

c. N°. 2277. 1 spec., length 177 mM. Gold Coast. Pel coll.

d. N°. 5224. 10 spec., length 55—83 mM. Robertsport, Grand Cape Mount River, Liberia. Demery coll., July 1st, 1891.

e. N°. 5230. 1 spec., length 75 mM. Hill Town, Du Queah River, Liberia. Büttikofer and Stampfli coll., 1887.

f. N°. 5225. 4 spec., length 70—165 mM. Soforé Place,

St. Paul's River, Liberia. Büttikofer and Sala coll., 1880.

g. N°. 5226. 2 spec., length 150 and 195 mM. Farmington River, Liberia. Stampfli coll., 1887.

h. N°. 5227. 1 spec., length 202 mM. Junk River, Liberia. Stampfli coll., 1884.

i. N°. 5228. 2 spec., length 87 and 120 mM. Robertsport, Grand Cape Mount River, Liberia. Büttikofer and Sala coll., 1881.

k. N°. 5229. 3 spec., length 32, 33 and 60 mM. Mahfa River, Liberia. Demery coll., 1889.

The literature about this matter consists of:

Peters, Monatsber. Kön. Preuss. Ak. Wiss., 1857, p. 403.

Gill, On the West-African genus *Hemichromis*, Proc. Acad. Nat. Sciences Philad., 1862, p. 134.

Günther, Cat. of Fishes, T. IV, p. 274.

Bleeker, Mémoire sur les Poissons de la Côte de Guinée, Nat. Verh. Holl. Maatsch. Wet. Haarlem, 1863, p. 38, pl. V, fig. 1.

Steindachner, Zur Fischfauna des Senegal, SB. Akad. Wien. Math. Naturw. Cl. Bd. LX, 1869, p. 970.

Sauvage, Faune ichth. de l'Ogôoué, Nouv. Arch. du Museum, Ser. II, T. III, 1880, p. 35.

Rochebrune, Faune de la Sénégambie, Actes d. l. Soc. Linn. Bordeaux, 1882, pp. 135 et 136.

Perugia, Intorno ad alcuni pesci raccolti al Congo, Ann. Mus. Civ. Stor. Nat. Genova, T. XXX, 1890—91, p. 971.

Steindachner, Die Fische Liberia's, Notes Leyd. Mus., vol. XVI, 1894, p. 47.

The description given by Peters mentions: »dorso fuscoviridis, lateribus abdomineque argenteus, fasciis transversis fuscis sex, macula operculari nigra; pinna dorsali et anali oblique fasciatis, albomarginatis; pinna caudali supra infraque albomarginata; pinnis ventralibus externe fuscis. Dentes medii duo superiores longiores, inferiores medii quatuor breviores.

D. $^{14}/_{12}$ ($^{14}/_{11}$), A. $^{3}/_{10}$ ($^{3}/_{9}$), Lin. lat. 28.

Africa occidentalis, Guinea. Pel coll." [1])

1) All the fishes sent by Pel to the Leyden Museum about the year 1850,

Before mentioning the conclusions I made after the study of the literature, after the informations which came in from other Musea, and after the material in the Leyden Museum, I will complete Peters' description.

Prof. Hilgendorf at Berlin wrote to me, after examination of the type-specimens, that as the sixth transverse band is to understand the darker part above and below the middle of the eye; the number of transverse bands on the body is consequently five.

The principal characteristics of *Hemichromis fasciatus* are after Peters:

1°. Five transverse dark bands on the body (the 6th across the eye).
2°. A dark, bluish-black spot on the operculum.
3°. Both corners of the caudal fin white.
4°. Dorsal and anal fin with oblique dark and light streaks, both with a white border, especially the dorsal fin.

I add: 5°. Dorsal and anal fin sharply pointed, the middle soft rays produced into short filaments.

I will now proceed to give a short review of what is said in literature:

Gill (1862) only repeats the description of Peters.

Günther (1862), enumerating two specimens from West Africa, says: »five or six blackish cross-bands; each scale below the lateral line with a dark vertical streak." White edges of the caudal fin are not mentioned.

Bleeker (1863) describes the 5 specimens collected by Pel; he states that there are 5 cross-bands, white corners to the tail and »squamis mediis lateribus supra axillaribus et interfascialibus aetate provectis singulis basi macula

were collected at the Gold Coast and Ashantee, and Prof. Peters received from the series of *Hemichromis*-specimens two examples; the other 5 remained in Leyden. These five have been described by Bleeker, whilst the drawing he gives of *Hemichr. fasciatus* shows a combination of characters, not to be found in one and the same individual.

fusco-violacea." As I said above, we find in none of the here mentioned specimens the white corners to the tail combined with the black centres of the scales.

Steindachner (1869) says that the cross-bands may sometimes disappear, or be changed in dark spots; further: »auf jeder Schuppe liegt ein kleiner schwarzgrauer Fleck. Oberer Rand der Dorsale und obere Ecke der Caudale rosenroth." The author had a material of 20 specimens, and none of them, as I may conclude from the description, showed both corners (lower as well as upper) of the caudal fin »rosenroth". [1]) All specimens were captured in the Senegal River.

Sauvage (1880) says nothing about the coloration of the tail, fins or scales. The specimen he describes is from the Gaboon River.

Rochebrune (1882) asserts that the description of Bleeker is not exact. As however the coloration of his specimens is as little corresponding with that of the specimens described by Peters, Günther and Steindachner, I suppose his fishes did not belong to *Hemichromis fasciatus*.

Perugia (1890—91) says that the small specimens he describes want the black spot on the operculum, but, for the rest, correspond with the diagnosis of Peters. — Congo River.

Steindachner (1894) says: »5 dunkle Querbinden am Rumpfe ..... auf den 4—5 mittleren Längsschuppenreihen des Rumpfes liegt auf jeder Schuppe zwischen den Querbinden ein ziemlich grosser, intensiv brauner Fleck. Viel schwächer der Grösse und Tiefe der Färbung nach sind die braunen Flecken auf den übrigen Schuppenreihen bis zur Rückenlinie hinauf entwickelt. Der dunkle Fleck am Kiemendeckel..... fehlt aber bei ganz jungen Exemplaren." — Liberia.

1) Steindachner made his annotations after fresh fishes; in spirits rose-colour becomes white.

About the material in other Musea I got the following informations:

Prof. Hilgendorf at Berlin gave me, amongst other ones, these remarks about the two type-specimens: »5 Querbinden; weissliche Einfassung der Caudalis, oben und unten in ihren hinteren Drittel, ist sehr deutlich; zwischen den Querbinden sind die Schuppen nicht durch Basisflecken ausgezeichnet, wie ich es an anderen Exemplaren von Liberia und Lagos sehe."

Prof. Vaillant at Paris wrote to me, that he did not observe white corners at the caudalis; on the sides of the body he found 5 cross-bands. — Franceville, Upper Ogowee.

As the caudal fin of the single specimen in the Museum at Genoa is in bad condition, no informations about its coloration could be given; 5 cross-bands on the body. — Congo River.

Mr. Boulenger of the British Museum wrote to me: »I may state that in *Hemichr. fasciatus* the white edge at the corners of the caudal coexists with the dark vertical streak on the side-scales below the lateral line, in specimens examined by Dr. Günther (see Cat. of Fishes) as well as in others received more recently."

From the examination of the material, now in the Leyden Museum, follows that:

1°. 3 specimens (see *a* of the enumeration, p. 111) correspond in every characteristic with the type-specimens of Peters.

2°. 25 specimens (see *b—k* of the enumeration, pp. 111 and 112) have only the upper corner of the caudalis white and the centre of side-scales black.

So we see that, after the authors and the various Museum-material, the following short diagnoses of *Hemichromis fasciatus* and its varieties can be given:

Hemichromis fasciatus Peters. The edge of the lower and upper corners of caudalis white, and the centre of side-scales below the lateral line without a black centre. — Two type-

specimens in the Berlin-, three co-types in the Leyden Museum.

Hab. Gold Coast and Congo.

Var. α. A very constant variety, when not a distinct species. Only the upper corner of caudalis with a white edge, side-scales below the lateral line with a black centre. — Many specimens in the Musea at Vienna and at Leyden.

Hab. Senegal, Liberia and Gold Coast.

Var. β. The edge of both corners of caudalis white, and the side-scales below the lateral line with a black centre. — British Museum.

Hab. West Africa.

Var. γ. Caudalis uniformly coloured, without white edges to the corners. — Paris Museum.

Hab. Upper Ogowee.

Leyden Museum, July 1895.